Director's Message

While the Central National Technology Support Center

Technology Transfer & Training

SPAW Model Calibration for Playa Wetlands

The Soil-Plant-Air-Water (SPAW) computer model is a hydrology tool capable of modeling precipitation, infiltration, and runoff from a watershed. It can take the resulting runoff and groundwater discharge, direct it to a receiving pond, and track the volume of water in this pond on a daily basis. The SPAW model uses climate data, which includes daily rainfall and temperature for any period of record, and reports the resulting runoff, infiltration, levels, and volumes. It has a wide variety of applications for wetlands, irrigation reservoirs, animal waste storage ponds, and livestock ponds.

To improve the SPAW program, actual monitored hydrologic conditions are critical to accurately calibrate the model. In the fall of 2008, CNTSC staff learned of a monitoring study of playa wetlands in the Texas panhandle near Lubbock. The monitoring data included daily rainfall, temperature, and water levels of several playa wetlands.

At the request of Texas STC Don Gohmert, CNTSC specialists Jerry Walker, water management engineer, Richard Weber, wetland hydraulic engineer, Wetland Team, and Lee Davis, biologist, Wetland Team, traveled to Lubbock in December, and received the data sets from Willie Crenwelge, and Kelly Atterbury, Soil Scientist, Lubbock.

With this data, Richard Weber and Jerry Walker are performing SPAW model runs for the purpose of calibrating the model results with observed data.

For additional information contact Rich Weber at richard.weber@ftw.usda.gov or 817-509-3576.

CNTSC specialists Jerry Walker and Lee Davis showing extent of vertical cracking in Texas playa

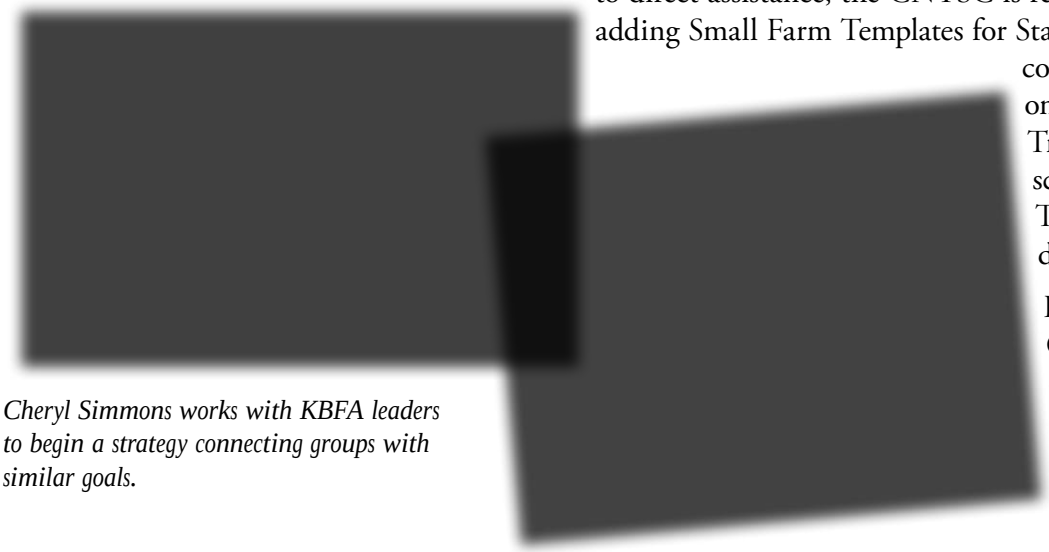
Working with Partners

In addition to direct technical assistance and technology transfer and training, the Central National Technology Support Center (CNTSC) works with new science and technology and national technical standards. A key component for achieving these goals is building partnerships.

CNTSC Natural Resources Specialist Cheryl Simmons, is coordinating with Kansas NRCS, the local Resource Conservation and Development (RC&D) Council, the North Central Sustainable Agriculture Research and Education (SARE), and the Kansas Black Farmers Association (KBFA) to connect strategically to small farm groups in the Central service area and nationally.

Headquartered in Nicodemus, Kansas, the only remaining western community established by African Americans after the Civil War, KBFA is positioning itself to promote local agriculture and extended community. In addition to direct assistance, the CNTSC is reviewing, modifying, and adding Small Farm Templates for States. As the templates are completed, they will be available on the CNTSC Technology Transfer site at: https://nrcs.sc.egov.usda.gov/st/CNTSC/TechTransferandTraining/default.aspx.

For more information, contact Cheryl Simmons at cheryl.simmons@ftw.usda.gov or at 817-509-3314.



Cheryl Simmons works with KBFA leaders to begin a strategy connecting groups with similar goals.

Wildlife Team Activities

The Wildlife Technology Development Team has been involved in the technical review of several fish and wildlife habitat publications, including several produced by the Agricultural Wildlife Conservation Center. A manuscript was completed on game harvest trends in cooperation with the Forest Service.

The team participated in an interagency meeting to evaluate the feasibility of establishing a joint venture for the conservation of Monarch butterflies. This included a review of milkweed species and identification of those species likely to be beneficial to Monarchs, while avoiding those with known adverse affects to livestock and agriculture.

Monarch Butterfly

Team members participated in two Farm Bill Symposia as part of the Midwest Fish and Wildlife Conference and The Wildlife Society's annual meeting. They are also working on the development of a database to document the phenology of nesting activities for several ground nesting birds, to offer consistent guidance on the timing of disturbances.

"Habitat Workshop" software was submitted to USDA IT staff for testing. This software automates the use of habitat assessment models, including habitat suitability index, general habitat, and hydrogeomorphic models for users.

Bill Hohman, CNTSC wildlife biologist, and Matthew Judy, CNTSC environmental assessment specialist, assisted the NRCS Oklahoma State Office in assessing the environmental effects of a WRP site near an Air Force Base in Oklahoma. Hohman is also assisting the Louisiana State Office to evaluate the concept of working wetlands in the rice growing areas of Louisiana.

Focus on Riverine Wetlands

Richard Weber, CNTSC hydraulic engineer, Wetland Team, and Romy Myzcka, CNTSC biologist, participated with Jon Fripp, stream mechanics civil engineer, NDCSMC, and Gary Wells, landscape architect, NDCSMC to produce the pilot workshop "Restoration Planning for Fluvial Systems." This pilot will be delivered in Traverse City, Michigan in May 2009, to an NRCS audience of district conservationists, soil conservationists, and RC&D coordinators.

The workshop content is designed to prepare planners and coordinators for work involving treatment and restoration of wetlands, streams and streambanks, and floodplain protection. Topics include soil hydrodynamics; stream and flood hydrology; wetland and stream classification and assessment systems; sediment cycling and transport; lateral connectivity of flora and fauna; and the mutual effects of treatments across the fluvial system landscape.

Riverine System

This workshop is an outgrowth of a national meeting held in Fort Worth, Texas, in January 2008, which included NRCS stream and wetland practitioners. The meeting's purpose was to attempt to integrate the various opportunities for NRCS training in streams and wetlands into a common framework.

For more information on this workshop, contact Rich Weber at richard.weber@ftw.usda.gov or 817-509-3576.

SITES Water Resource Site Analysis

The SITES Water Resource Site Analysis computer program will analyze the hydrology and hydraulics for design of typical NRCS dams and ponds. The software will design a dam or pond to comply with the NRCS criteria contained in either Practice Standard 402 for Dams or 378 for Ponds. The SITES computer program will design a pond with or without a pipe, route the principal spillway hydrograph and set the auxiliary spillway elevation, route the freeboard hydrograph and set the top of the embankment pond, and analyze the auxiliary spillway by both the tractive stress and velocity methods. The tractive stress method is outlined in USDA Agricultural Handbook #667. Tony Funderburk, CNTSC agricultural engineer, Morris Lobrecht, retired design engineer, and Karl Visser, hydraulic engineer, NDCSMC, are actively involved in providing training in the use of SITES for the design of ponds. Tony, Morris, and Karl provided Multi-State live net conference SITES Workshops for 105 participants in 2008.

For training in the use of SITES for the design of ponds, contact Tony Funderburk at tony.funderburk@ftw.usda.gov or 817-509-3289.

Predicting Wind Erosion on High Organic Soils.

A team of ARS and NRCS specialists are working to incorporate wind erosion on high organic soils into the Wind Erosion Prediction System (WEPS). On a recentfield trip to Florida, the team discovered that most of the farmed muck soils have lost as much as 75 percent of their topsoil. These areas subside (oxidize) about an inch per year and erode excessively when farmed to short season vegetable crops.

"Pole of Subsidence," established in the 1920s, shows the site has loss about 7 feet of depth.

The team has recommended that all calculations in WEPS use a single organic soil file to calculate wind erosion on organic soils. This file is built with summary organic data from the NRCS National Soils Lab in Lincoln, NE. Test runs in Michigan show soil loss as high as 400 ton/ac/yr on leafy vegetable crops with high tillage and no conservation practices. When the conservation practices of Cover Crop and three-row Vegetated Barriers were applied, the soil loss dropped to 2-10 tons per acre.

For more information, contact Mike Sporcic, CNTSC wind erosion specialist at michael.sporcic@ftw.usda.gov or 817-509-3213.

Central Environmental Engineers' Teleconference

March 5, 2009, 10:00 a.m. CDT

Contact Cherie LaFleur, CNTSC Environmental Engineer, at 817-509-3303, or cherie.lafleur@ftw.usda.gov

Central Soil Scientists' Technology Workgroup Teleconference

April 9, 2009, 9:00 a.m. CDT

Contact Ed Griffin, CNTSC Soil Scientist, at 817-509-3304, or edward.l.griffin@ftw.usda.gov

CNTSC Technology Advisory Board Teleconference

April 15, 2009, 9:00 a.m. CDT

Contact Ron Williams, CNTSC Director, at 817-509-3328, or ron.williams@ftw.usda.gov

Central State Engineers' Teleconference

April 21, 2009, 10:00 a.m. CDT

Contact Jerry Walker, CNTSC Agriculture Engineer, at 817-509-3387, or jerry.walker@ftw.usda.gov

CNTSC Contact Information

USDA- Natural Resources Conservation Service
501 West Felix, Building 23
Fort Worth, Texas 76115
Phone - 817-509-3328
Fax - 817-509-3336

www.nrcs.usda.gov/about/ntsc/central/